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ABSTRACT

Increasingly, software is being developed for special education administrative purposes, including Individualized Education Program development and documentation, database management for reporting and monitoring instructional programs for federal accountability, statistical analysis for program monitoring, and creative uses. The widespread use of such software, however, can lead to abuse of student records and data files. Directors of special education should examine logistical and practical matters prior to buying software and should consider factors related to security, storage, and use of the hardware/software. Administrators can overcome computer resistance through a variety of approaches, including not trying to change everything all at once, acquainting all staff with computer operations, understanding the system, and involving appropriate staff in the choice of equipment and training. The ideal computer work station should serve a variety of purposes, including word processing, electronic mail, mail label printing, and an electronic clock and calendar. Work stations should include such hardware as a user-friendly keyboard and two disk drives or one disk drive with a second hard disk drive. Further, the hardware should be supported by a service contract. Guidelines for evaluating special education administration software center on such aspects as documentation, user support, and value to end-user. (CL)

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SPECIAL EDUCATION ADMINISTRATION AND MICROCOMPUTERS: SOME CONSIDERATIONS FOR HARDWARE AND SOFTWARE IN THE 1980's

A Presentation at the
1984 New Horizons in Deaf Education Conference:
Instructional Use of Microcomputers
April 26 - 28, 1984
Texas School for the Deaf
Austin, Texas

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The information presented in this paper is a written summary of an oral presentation given at the *"New Horizons in Deaf Education: Instructional Use of Microcomputers,"* April 26 - 28, 1984 in Austin Texas at the Texas School for the Deaf. *The presenter was George T. White, Jr. Mr. White can be contacted for further information on this subject/area through the Raleigh County Board of Education, Department of Special Education, 205 New River Drive, Beckley, West Virginia 25801. An office phone number is (304) 252-7355 ext. 66/72. For further information on this topic the reader should consult:* White, Jr. G. T. (1984, February). Micros For The Special Ed Administrator: How to Use a Computer to Keep Up With Special Ed Law. Electronic Learning, pp. 39 - 42.

The Council for Exceptional Children held its first "Microcomputers and Special Education" Conference in March of 1983. A review of the computer software and hardware available to the conference participants indicated the initial direction software publishers were taking relative to the field of special education. Instructional materials, computerized textbooks, achievement & psychological scoring systems were all present in abundance. Very few publishers were showing software specifically designed for meeting the needs of the local education agency's (LEA) director of special education.

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Now in 1984 there has been more attention focused on meeting the needs of LEA director of special education. Special Education Administrative Software is now being used for the following purposes:

1. Individual Education Program (IEP) Development and Documentation.

2. Data Base Management for reporting and monitoring instructional programs for accountability under PL 94-142 and other federal requirements, i.e., PL 89-313, Section 504 of the 1973 Rehabilitation Act, etc.

3. Statistical Analysis of existing records for programmatic monitoring to help justify changes in programs, increasing/decreasing staff, additional funding, etc.

4. Creative (You Name It) Uses.

The uses of special eduction administrative software also hold the potential for abuse of student records and data files. Several problems that describe these potential misuses are listed below:

1. Networking Problems -- Inappropriate student data is sent to some state agency. Portions of a student's record are lost due to power failure, hardware problems, etc.

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2. Human Error -- A computer operator presses the wrong key or issues the wrong command to the hardware. This destroys all information on a student's record or all student records in that file. When in fact, all the operator wanted to do was update a particular student's record.

3. Interagency Problem -- The wrong information is read by some other agency's computer from your data files. All your data files are destroyed in the process.

There are several considerations that directors of special education should review prior to buying software for any special education applications. They are as follows:

1. Is your State Education Agency or Office of Special Education considering implementing a statewide networking system to connect all of its departments/ divisions/offices to some central point for data gathering and reporting purposes? If YES, then what will this mean to you in terms of compatable hardware, software, reporting systems, etc. If NO, then are you sure? Many states are already implementing statewide networking systems. Check before you buy!

2. Consider your own unique administrative and educational needs first. Do you really need a computer generated Individual Educational Program (IEP) for each student?

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3. What are the logistics of delivering a computer generated IEP to the parents of a child who does not attend the IEP meeting? Will the parents understand the information on the computerized IEP? What will happen if they don't? Is this really informed consent?

There are several specific considerations that should be reviewed prior to purchasing IEP generator software. Directors of special education programs should review the following items prior to purchasing any administrative software:

1. Printouts -- Often special ed administrators won't need all the information contained in an individual student's records. Will the IEP software print selected parts of the documents? Summaries of part or all student records? On one form or multiple forms?

2. Security -- IEP programmatic information is confidential. Is a password necessary to control access to the information? If so, who will have it?

   Is it important to know when information was entered and by whom? If so, does the software you are interested in have this option?

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3. Storage -- How many students will the program accommodate? Does the program have hard disk capacity? Can the program enable your computer to interact with a mainframe computer? Can you make a back-up of your software (copy it)? If not, what do you do if it malfunctions? Who do you call? Does it cost you additional money to get it running again? How long does it take?

4. Use -- Do you have to constantly change diskettes to move from one section of the program to another? Will a hard disk drive avoid this problem? Will it speed up your program?

As of August 1983 there were over 30 different IEP generator programs, some of which included data base management software, as well as individual data base management software. An excellent survey of these programs can be found in **Computer -- Assisted IEPs: An Examination of the Relative Efficiency and Usefulness of Computer -- Assisted Individualized Education Programs.** This report was prepared by Dr. Nancy C. Enell, and Dr. Stanley W. Barrick in August of 1983 for the Office of Special Education, California State Department of Education, Grant Number 34-3651-67447-01-82.

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One of the major problems in introducing new concepts into the workplace, whether it is a school system or public corporation, is the effect the innovation has on existing practices and proceedures. The use of microcomputers in special education administrative practices can be a prime example of computer resistance. This is particularily true if the pressure for the change has come from personnel other then the director of special education, or if there is no support from upper management for the changes brought about by th_ microcomputer(s). A clear example of this can be seen in the purchasing of over 10,000.00 dollars in state of the art microcomputer hardware and software by one assistant director of special education. Ironically, four years later, the equipment is still gathering dust in an unused corner of the office. The special education director was not comfortable with microcomputers. This individual could not stop them from being purchased, but as long of they were the director, microcomputers would never be used for any administrative functions. The director even went as far as ordering members of the special education staff who were computer literate to stay away from the machines. While this seems to confirm the old adage that "some people have to die before an organization will ever change," in less extreme examples methods of overcoming computer resistance are still needed.

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Several strategies for motivating school administrators and their staff to use microcomputers to do their jobs more effectively are listed below. They are:

1. First, do a Needs Assessment of your current operations. Do you need to computerize your administrative paperwork? All of it? Some of it? Can you prioritize it in some manner? **DON'T ATTEMPT TO CHANGE EVERYTHING ALL AT ONCE. USE SMALL STEPS.**

2. Training and Education to existing staff is your first and best line of defense against misuse, abuse, or no use of expensive and very useful equipment. All staff need to be familiar with newly installed computers.

3. As the administrator in charge of setting up your department and/or program's computer system, familiarize yourself with the ins and outs of the computer. You must not promise more then can be delivered. Computers cannot solve mismanagement problems, but they can really foul them up. THINK before you act! THINK before you buy!

4. Involve yourself, your junior level administrators and appropriate staff members in the choice of hardware, software, and training programs.

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If your secretary is going to use your microcomputer for massive amounts of word processing, then s(he) needs to be satisfied with the keyboard, software design, and work station. You don't know everything be sure to ask others their opinions.

5. Give your "Go-Getters" or "Hackers" the opportunity to work with it (There is insurance). Then use them to inservice your other staff members. Just how much does IBM charge for a two day inservice? Think about it.

6. Plan ahead for the extra learning time involved in both using the computer (gaining both knowledge and speed), and for getting the regular jobs done on time.

7. If there is no time to train staff or administrators during working hours, then give them the opportunity to come in for saturday or evening seminars. Is extra pay necessary for off hours training? It may be funds well spent. Think about it!

8. REMEMBER, Patience is very important with older employees who may fear the microcomputer or not be interested in it.

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9. Don't bite off more then you can chew. Encourage people to perfect one or two of the most important applications first (such as running an IEP program or mastering a word processing program's commands) before expecting them to learn other software uses.

10. GET EXTRA HELP IN THE START-UP PHASE WHEN YOU ARE INPUTTING VAST AMOUNTS OF DATA TO GET A DATABASE SYSTEM UP AND RUNNING. ALL THAT DATA HAS TO BE CODED SOMEHOW PRIOR TO ENTERING IT (ALL BY HAND USUALLY) INTO YOUR COMPUTER. START-UP TIME WHEN YOU ARE BUILDING YOUR DATA BASE IS TREMENDOUSLY TIME CONSUMING, BUT ONCE THE DATA IS IN AND THE PROGRAMS ARE RUNNING *** CORRECTLY *** ADMINISTRATORS CAN USE IT TO GREAT BENEFIT, AND VERY QUICKLY.

There are also several successful strategies that allow special education administrators to NOT motivate staff members to use microcomputers. Sung to the tune of " If God had wanted me to use a microcomputer, then I'd have been born with my own disk drives and a CPU chip." If this is your purpose as a director of special education, then try these strategies, you'll like them.

1. Stick a manual and computer in front of your staff and junior administrators and tell them to learn it (you haven't, of course).

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2. Don't offer training and education. Tell your staff they "sink" or "swim" with their own useage of the computer. Even better, threaten them with their jobs if they don't learn how to use it by next Tuesday.

3. Set a time limit for learning and expect your staff and junior administrators to grasp all of the necessary functions of the computer and do all of their regular tasks at the same time.

4. Don't allow anyone to take it home or experiment with it.

5. Run out and buy the hardware, then the software because "it's cheaper to computerize" and "you will be in with the times." Don't think about your needs before you buy --- PLUNGE RIGHT IN --

6. Assume that because you are so adept at computers, everyone else will be too.

7. Identify resistant persons and punish them for their non-use of microcomputers.

8. Create a sterile office environment, buy one kind of computer and expect your staff to sit in front of it eight hours a day.

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9. Don't learn anything about the computer yourself. Attend "Knowledge" seminars with no hands-on experiences. Then call in "Specialists" because your don't have the time or interest to teach your subordinates.

A microcomputer that has been purchased after careful thought should serve a multitude of purposes. It should be a workstation. The "Ideal" workstation will have software that will function as:

1. A word processor for writing letters, reports, and project applications.

2. A spell checker that will not only identify misspelled words, but suggest on screen what word you meant to spell. Also, it should allow you to customize or add unique words to its spelling dictionary. Expect a 20,000 word dictionary as being the absolute minimum.

3. A Thesaurus. This is a boon for creative grant writing when you need several words that mean the same thing. Also useful for project applications and reports to the State Department of Education.

4. An Information Indexer. This allows you to cross reference your data files by subject, date, key word, etc. This is especially useful when using a hard disk with multiple files.

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5. Electronic Mail. SpecialNet is only one of the many electronic network systems available to directors of special education. Knowledge Index, Dialogue, etc all allow access to multiple databases, i.e., ERIC, CEC, International Software, Psychinfo, etc.

6. An Address Book. Storing names, addresses, and phone numbers of parents, distributers, salespersons, etc. on electronic files is an excellent way to keep your personal files. This is an expecially elegant system if the software will automatically call them once their name has been located.

7. A Mailing Label Printer. This option allows for the printing of address labels for sending out information to parents, and other interested parties. For example, a letter on a parent training session on increasing the social skills of EMR students could be sent automatically to this group of parents.

8. An Appointment Book. This would allow a secretary to automatically make appointments, block out times for out of office activities, and schedule activities, events, etc. weeks in advance.

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9. An Electronic Clock and Calendar. This should be built into the hardware of the microcomputer. This allows the software to automatically pull the correct time, and date for functions such as the appointment book, electronic mail system, and schedule printer.

10. A Schedule Printer Option. This software option would allow the microcomputer user to obtain a paper copy of his or her appointment book.

11. A Graphics Drawing System. This software would allow for the drawing of bar graphs, line graphs, pie charts, with minimal programming for plotting the dimensions of the graphs. Epson's QX-10 minicomputer uses VALDOCS software which allows for graphic displays in which the user has only to enter graph titles, and numerical values. Anything else will not be used due to lack of training on the secretary's part. The key word here is SIMPLE, but elegant.

12. An Electronic Spreadsheet. This will allow for the projection of financial costs for different programs under different sets of conditions. Ideally, the software should allow for graphic displays of this data when needed.

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13. A Notepad. This should allow for the drawing up of comments on your appointments, or conferences with parents, professionals, etc. It differs from straight word processing in that it would allow the user to place these notes within the appointment book.

The "Ideal" Computer Workstation will have hardware that has the following elements:

1. A green or amber CRT display screen for word processing. It should allow 80 characters per line. It the best of all worlds, color graphics are helpful for developing displays for presentation. REMEMBER, what you see on the screen is NOT what you get on a dot matrix or letter quality black & white printer. Do you really need a color display? Think about it, maybe not!

2. A User-Friendly Keyboard. The IBM Selectric appears to be a secretary's best friend. Does your microcomputer's keyboard match this standard? Is your secretary comfortable with it? She needs to be!

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3. 2 Disk Drives or 1 Disk Drive with a second Hard Disk Drive. Many programs run faster on a hard disk. Mass storage systems allow you to forget floppy disks. Back-up capacity of your hard disk is needed. Tape back up is best. Do you really want to know how many floppy disks are needed to back up a 20 Megabyte Hard Disk? If you use four 5 MB tape cartridges, then you will be good standing if a "head crash" occurs.

4. A 132 column line printer. This printer should be heavy duty for long hours of use. Epson printers have the best reliability figures in the industry. You can't go wrong with their product. Dot matrix and letter quality are two modes that should be available on the same machine. Graphic capacity is also necessary. Again, Epson has all three modes.

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5. Easy to read documentation. Ideally, the documentation should be included in the software. The best documentation is easily read, and easily available to the computer user through a "HELP" key located on the keyboard. Technical writing is not for first time users. Look for clear, concise, and understandable writing. Avoid all other documentation. Software that is excellent but poorly documented is not the buy it seems at first. Always ask who wrote it. Japanese English is not American English. Read the manuals before you buy the software.

6. A Toll-Free "Help" WATS line. This is an absolute necessity unless your microcomputer dealer is available using a local call, and knows the hardware or software you purchased, and is willing to talk to your after the sale. If the system has a "Help" WATS line, then its a major plus for you and your staff.

7. Local Service for repairs with "loaner units" available as needed. Do you really want that state of the art microcomputer system that has to be sent over 2000 miles to be repaired? Or, requires a part that takes 6 months to order and 3 months to arrive. Weight cost verses Local Service. Local Service is a major plus. Think about it!

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8. A service contract. If you don't have have access to service personnel who can repair hardware, then you need to seriously consider an extended repair or service contract. It will be worth its weight in gold when the original warranty expires.

The final section of this paper will deal with guidelines for evaluating special education administration software. Directors of Special Education would be well advised to consider these guidelines prior to purchasing any specialized IEP or database software designed specifically to meet their reporting requirments under PL 94-142. Consider the following items in terms of are they present within the software and/or documentation.

A. PROGRAM DOCUMENTATION:

1. Is the purpose of the program clearly defined in the supporting documentation?

2. Is the documentation (the computer manual) easy to read and understand?

3. Are there specific instructions for getting started? Are these instructions easy to follow. Can you exit (stop) running the program without starting the entire program all over again?

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4. Are the instructions for storing student data as well as recalling it clearly described in the documentation? Can you understand them without having taken Engineering 131?

5. Are sample outputs of the data provided?

6. Are the hardware requirements clearly stated? Are the limitations also clearly stated? (Do you need a surge suppressor, power backup, etc.)

B. VALUE TO END-USER:

1. Does the program meet a need for the staff as well as the administration? If not, it won't work!

2. Will the software meet the need better then the existing system being used by administrators and staff? (e.g., Faster, More Accurate, More Reliable)

3. Will the use of the software be worth the time it will take to learn how to use the program?

4. Will the software be worth the cost?

C. USER-FRIENDLY:

1. Is the program easy to start, e.g., a "Turnkey" System?

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2. Is the program easy to get out of? How do you get out of a "loop" and back to the begining of the program?

3. Are any instructions displayed on the screen to help users go through the program sequence? Are they easy to understand and helpful?

4. Are the input responses to the computer familiar to users (such as "Y' for "YES" and "N" for "NO")?

5. Are program options displayed as "Menus"?

6. What does the software program do if the user strikes a wrong key? Does it give you a prompt response reminding the user of the correct options and disregard the error? If it does it is a quality piece of work. Look it over in greater detail.

7. Can input errors be easily corrected?

8. Is the data output complete and in a format that can be easily read and understood by non-professionals in computer science? In other words, does it make sense to you? <u>Does it make sense to parents?</u>

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D. DOCUMENTATION:

1. Is the documentation complete? Does the manual tell you everything you need to know?

2. Is the documentation concise? Does it tell you MORE then you want to know?

3. Is the documentation written in terms that you can understand WITHOUT having to refer to another manual?

4. Is the documentation well organized? Can you find answers to specific problems by referring to the index or table of contents?

5. Is there a Toll-Free WATS line to call for outside help? Do you have to write to the company for additional information? Does your local dealer/retailer/distributer have the "expertise" to answer your technical questions? Software questions?

E. USER SUPPORT:

1. Are Back-Up copies of the software available? If not, then are instructions for making Back-Up copies included with the originals?

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2. Can the program be returned if administrators and staff decide that it is not appropriate to their unique setting? Is there a complete refund? Partial refund? No refund? Shop carefully this is a buyer beware situation!

3. Can future updates (revisions) of the software be obtained at reduced rates?

4. Can replacement copies of the software be obtained at reduced rates if the originals become damaged or are accidently destroyed?

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